“The Integrator”

NMEA 0183 to AD10 Converter
for Furuno Radar/Chartplotters
Installation and User Manual



906-2800-00
Ver A01

Thank You

Thank you for purchasing another quality product from TR-1 Autopilots. TR-1 is confident that you will find this piece of electronic equipment will enhance your autopilot's ability to make your boating experience safer and more enjoyable.

Summary

"The Integrator" AD10 Gateway provides the ability to interface with (Furuno) radars/chartplotters that utilize the AD10 data format. The Integrator will allow the owner of a TR-1 Gladiator Autopilot to directly interface with radars/chartplotters and utilize the MARPA functions without the expense of purchasing an additional heading sensor with AD10 data output.

The Integrator AD10 Gateway requires input from an accurate stable source of heading data such as the TR-1 Gladiator Autopilot.

Safety

You are responsible for the safe and prudent operation of your vessel. Your TR-1 Autopilot is a tool that will enhance your capability to operate your boat and catch fish. It does not relieve you from the responsibility for safe operation of your vessel. You must avoid hazards to navigation and never leave the helm unattended.

- You must always be prepared to promptly regain manual control of your boat. The autopilot can fail and hard over.
- **Learn to operate your autopilot on calm and hazard free open water.**
- In case the autopilot becomes inoperable, remove the in line fuse from the battery power cable.
- If available, always use the engine kill lanyard when operating your boat.
- Use caution when operating the autopilot at high speeds near hazards in the water, such as docks, pilings or other boats.

Before Starting Installation

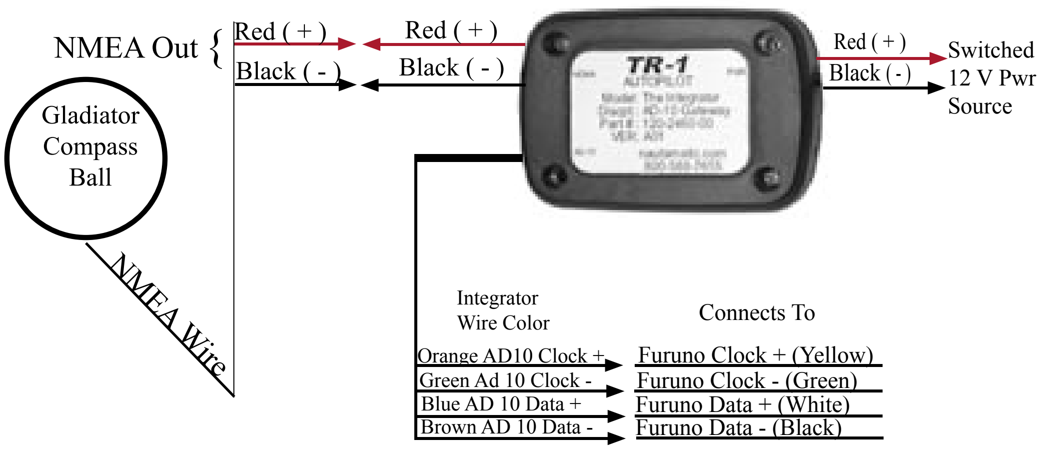
Study this manual and the other manuals provided with your autopilot carefully, and familiarize yourself with all of the components and their intended or required mounting locations. Ensure there is adequate space available for installation before cutting or drilling holes. Take extreme care when cutting and drilling, to avoid the possibility of damaging other components in the boat, and avoid possible personal injury. Be sure to follow the instructions carefully and thoroughly. Nautamatic Marine Systems, Inc. cannot accept responsibility for installations where the instructions have not been followed, where substitute parts have been used, or modifications have been made to our products.

Mounting Considerations

The Integrator unit is mounted on any flat surface, using two #6 screws provided, through the mounting holes in the case. The unit should be located so its LED is visible to the helmsman during normal boat operation, but not directly in the line of vision due to the brightness of the LED. Although the Integrator is a completely sealed unit it should be mounted in a location that is not subject to immersion or water from wash down.

Installation

Installation of The Integrator consists of mounting the device in a suitable location, connecting wiring for NMEA input and AD10 output signals, and providing a switched 12 volt power supply and ground.



Connector	Wire Color	Signal	Connects To
Power	Red	+ 12 VDC	Switched Power Source
	Black	Ground	Engine Ground
NMEA 0183	Red	NMEA +	Gladiator NMEA Out + (Red)
	Black	NMEA -	Gladiator NMEA Out - (Black)
AD10	Orange	AD10 Clock +	Furuno Clock + (Yellow)
	Green	AD 10 Clock -	Furuno Clock - (Green)
	Blue	AD10 Data +	Furuno Data + (White)
	Brown	AD 10 Data -	Furuno Data - (Black)

Radar/Chartplotter MARPA Configuration

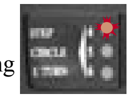
The radar or plotter should be configured for magnetic oriented AD10 data when using the TR-1 Gladiator as the heading data source. As setup procedures are unit specific, please refer to the operator's manual of your Radar/Charplotter, for proper configuration procedure.

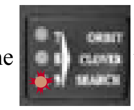
NMEA Configuration

The TR-1 Gladiator's NMEA output should be set to send at its highest rate (10 Hz). The Gladiator's default setting is 10Hz. If you have changed this setting or do not know what setting it is on, follow these instructions.

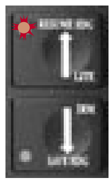
Press and release the [Setup] 

button on the handheld, Setup LED will illuminate.

Enter code 49 by Pressing and releasing 

once to illuminate the 4 LED, and pressing and releasing the 

three times to

Illuminate the 9 LED. The [Up Arrow]  LED will be lit if the setting is at the hightest setting, which is 10 Hz.

If the **[Up Arrow]** is illuminated it means that it is set at 10 Hz. You do not need to do anything else. If it blinks multiple times you will need to release the **[GPS /Select Load]** button and press and release the **[up arrow]** until it stays on. That means that it is set to the top setting at 10 Hz. You will then need to save this as the default setting. While the Setup button is illuminated, press and hold the **[GPS /Select Load]** button, and while still holding this button, press and release the deckmount on/off button once quickly, then release the **[GPS/Select Load]** button. You have now saved this setting into permanent memory .

Operation

On power up the Integrator's LED will be lit solid for two (2) seconds. This indicates that the startup was successful and the unit is functioning properly. After the initial startup period the unit's LED is solid on whenever it is receiving valid NMEA heading data. The LED will turn off if the NMEA input is lost, or the NMEA data is invalid for a period of over one (1) second.

For most radars or plotters to properly acquire the AD10 data signal, the Gladiator autopilot and the Integrator must be powered up and operational before the radar/plotter is turned on. Likewise, during operation if for any reason the Integrator signal is lost the radar/plotter must be power cycled to re-acquire the AD10 signal.